

**Amendment**

Applicant: Michael Paul Tankard et al.

Serial No.: 10/656,815

Filed: September 5, 2003

Docket No.: K315.130.101

Title: MEASUREMENT OF THE RATE OF CHANGE OF CURRENT IN SWITCHED RELUCTANCE MACHINES

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**REMARKS**

Claims 1-23 are pending. By this Amendment, new claim 23 is added.

The June 10, 2005 Office Action rejected claims 1-22 under 35 U.S.C. § 102(e) over Kojovic (U.S. Patent No. 6,680,608). Applicant respectfully traverses this rejection.

Kojovic: Each turn of the coil is *not* displaced from its neighboring turn in a direction parallel to the direction of the conductor

Independent claim 1 recites a conductor in which rate of change of current is to be sensed. Each turn of a coil recited in the claim is displaced from its neighboring turn in a direction parallel to the direction of the conductor (see claim 1, lines 2-4, for example).

Independent claim 9 recites at least one conductor comprising a phase winding and a sensor connected to sense the rate of change of current in a phase winding. Each turn of a coil recited in the claim is displaced from its neighboring turn in a direction parallel to the direction of the conductor (see claim 9, lines 2-4 and 6-7, for example). Independent claim 12 recites similar features; note lines 2-4 and 6-7, for example.

Figure 6 of Kojovic, referenced in the Office Action, is a *perspective* view. Note Kojovic's Brief Description of the Drawings, for example, column 2, lines 49-50. In Figure 6 of Kojovic, as in e.g. Figures 1, 2A, 3A, 4A and 5A, Kojovic's conductor under test (e.g. 605, 505, 405, 305, 205 and 105) is in a direction *perpendicular* to the direction of displacement of neighboring turns in Kojovic, instead of *parallel* thereto as claimed. Again, Figure 6 is a perspective view; conductor 605 extends into and out of the page when properly viewed in the manner of e.g. Figure 5A and the previous figures. Even if Figures 5A and 6 of Kojovic were considered to show turns of an upper coil "displaced" relative to respective turns of a lower coil

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in a direction parallel to the conductor 505/605, Kojovic fails to teach or suggest the claimed arrangement, in which *neighboring* turns of *each* of the coils are displaced from each other in the claimed direction parallel to the direction of the conductor. Accordingly, Applicant submits that Kojovic fails to anticipate independent claims 1, 9 and 12 or their respective dependent claims.

Moreover, Kojovic completely fails to recognize the advantages that arise from embodiments of the claimed invention. For example, embodiments of the claimed invention eliminate the need, shown clearly in Kojovic, to provide an arrangement whereby the conductor under test has to be threaded into the center of the coil in order to take measurements. In a printed circuit board implementation, the conductor under test extends through the coil and also extends through the printed circuit board, potentially resulting in assembly problems. (Note, for example, page 5, lines 6-7 of Applicant's specification). The Kojovic reference also relates to a type of Rogowski coil (see, for example, column 5, lines 10-12 and column 6, line 40 of Kojovic). Rogowski coils have been acknowledged as prior art and discussed in Applicant's specification; see, for example, page 4, line 18 – page 5, line 7. Again, a problem with the Rogowski coil is that the conductor needs to be placed through the coil, and, hence, through the printed circuit board in a printed circuit board implementation. These problems are addressed and overcome by embodiments of the claimed invention. Note new dependent claim 23, which recites that the conductor is formed on or comprises a layer of the printed circuit board, without passing through the printed circuit board.

In view of the foregoing, Applicant submits that Kojovic fails to anticipate, teach or suggest the claimed invention.

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**Kojovic does not sense rate of change of current**

Independent claim 1, lines 1-2 recite that rate of change of current is to be sensed.

Independent claim 9, lines 3-4 and independent claim 12, lines 3-4 recite similar features.

Kojovic, on the other hand, makes no reference to sensing rate of change of current, but only to measuring voltage (see, e.g., column 2, lines 63-65). The Office Action rejected the pending claims as anticipated under 35 U.S.C. § 102; yet Kojovic contains no disclosure of sensing rate of change of current. Rate of change of current appears nowhere within the four corners of Kojovic, and in fact the word “rate” does not even appear in the reference.

Accordingly, Applicant submits that Kojovic does not anticipate the claims under 35 U.S.C. § 102.

**Conclusion**

In view of the foregoing, Applicant submits that this application is in condition for allowance. Favorable reconsideration and prompt allowance are requested. The Commissioner is hereby authorized to grant any extensions of time and to charge any fees under 37 C.F.R. § 1.16 and § 1.17 that may be required during the entire pendency of this application, or to credit any overpayment, to Deposit Account No. 500471.

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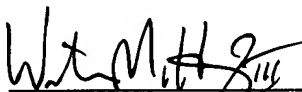
Title: MEASUREMENT OF THE RATE OF CHANGE OF CURRENT IN SWITCHED RELUCTANCE  
MACHINES

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The Examiner is invited to telephone the undersigned to advance prosecution.

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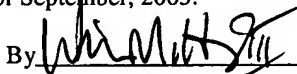
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*Please grant any extension of time necessary for entry; charge any fee due to Deposit Account No. 500471.*

**CERTIFICATE UNDER 37 C.F.R. 1.8:**

The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail with sufficient postage, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 8<sup>th</sup> day of September, 2005.

By

  
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